Inventory of experimental and theoretical resources available for NanoSpace COST Action	
Country:	Italy
Name of Institution/Laboratory:	Elettra Sincrotrone Trieste & Consiglio Nazionale delle Ricerche / **GasPhase** Photoemission beamline
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Website:	https://www.elettra.eu/elettra-beamlines/gasphase.html
Short description **(max 0.5 page)** of available techniques (experiment or theory): If appropriate, please include 1 picture/figure and caption highlighting resources.	The **GasPhase** Photoemission beamline at Elettra. offers a multi-technique approach for investigation of the electronic properties of free atoms, molecules and clusters in the VUV. It is is the only one specifically devoted to research on gaseous systems. . The **GasPhase** experimental end-stations are open to international users through peer review. Main available techniques and methods are: XPS, UPS, NEXAFS, Resonant Photoemission, ARPES, Time Resolved X-Ray Spectroscopy, Photoelectron-Photoion and Photoelectron-Photoelectron Coincidence Spectroscopy, 3D Ion Imaging, Velocity Map Imaging, Threshold Photoelectron Spectroscopy, Photon In-Photon Out Spectroscopy. Operative since 1997,GasPhase will stop its activities at the beginning of 2025, and migrate to the new beamline MOST ("Molecular Science and Technology") to exploit a novel and more powerful doublet of undulator sources, which are currently being installed in the accumulation ring within the Elettra 2.0 upgrade program. The available energy range will be 9-3000 eV, and it is going to be commissioned in the first semester 2024. MOST is going to be opened to User operation by the end of 2026, at completion of the Elettra 2.0 upgrade
Sample/target description (e.g. gas, clusters, solid,…):	Gas phase targets produced as: effusive beams from gases, liquids and solid samples, free jet and cluster sources (van der Walls, molecular and metal), microwave plasma and flash pyrolysis (free radical in situ). A liquid jet is in preparation.
How to access to experimental/computational resources (e.g. through collaboration, user facility proposal calls,….):	Beamlines at the Elettra synchrotron and at the FERMI seeded free electron laser (FEL) facilities can be accessed through User proposal calls, collaboration, and ILO.
References **(max 5)**:	S. Falcinelli et al. Atmosphere, 7 (2016) 7090112 ***;*** doi: 10.3390/atmos7090112 M.H. Stokett et al. Astrophysical Journal *913 (2021) 46* doi: 10.3847/1538-4357/abf354 M.H. Palmer, et al. J. Chem. Phys **156** (2022) 6; doi: 10.1063/5.0073505